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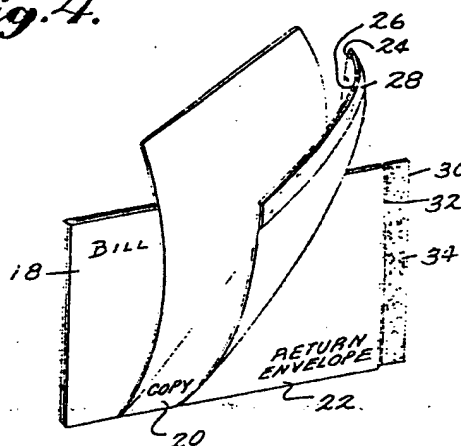
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Return envelope sealing flap construction.

An envelope construction includes an outer envelope 14 and a return envelope 22 contained therein. The return envelope 22 has a front sheet and a back sheet, both sheets being provided with marginal edges bonded together except along one edge. The front sheet extends beyond the back sheet at this one edge and has a closure flap 30 provided with an adhesive strip 34 for sealing the return envelope. First and second insert sheets, 18, 20, in the nature of a bill and a copy thereof, are arranged inside the outer envelope 14 and are juxtaposed over the back sheet of the return envelope 22. One insert sheet includes an end strip 24 provided with a release agent 28 on its back side which overlies and protects the adhesive strip 34 provided on the closure flap 30 for the front sheet of the return envelope.

Fig. 4.



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## RETURN ENVELOPE SEALING FLAP CONSTRUCTION

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

The present invention relates to an envelope construction including an outer envelope and a return envelope, the latter of which has a unique sealing flap arrangement.

#### 2. Description of the Related Art

Many businesses routinely use envelope constructions incorporating return envelopes for recipients to mail back bills with checks for payment. These envelope constructions are prepared continuously in bulk on high-speed collating machines. Speeds at which collators run are dependent upon the form of the envelope construction being assembled. Typically, a complicated form could run at only 20 feet per minute while a simple form might run as high as 350 feet per minute.

Such envelope constructions usually use a so-called transfer tape having a release overlay to protect the pressure sensitive adhesive prior to sealing. Remoistenable or self-sealing adhesives are also presently applied to the back of flaps for sealing closed the return envelope before it is mailed back to the sender.

The application of the transfer tape during the collating process is limited to in-line manufacture only and cannot be done across-the-web. Because of this limitation, all unitary envelope constructions incorporating return envelopes utilize side flap openings for insertion of the bills and payment checks into the return envelopes.

With the present envelope constructions, there is also a problem with down time for the high-speed collator whenever the reels of transfer tape being fed during the manufacturing process run out and need to be replaced with full reels of transfer tape.

Adhesive applied to the closure flap for the return envelope must have quick drying times and this requirement necessarily limits the type of usable adhesives to hot melt water remoistenables or fast drying solvent types. However, the U.S. Food and Drug Administration (FDA) could impose limits upon or ban the use of these types of adhesives because of the chemicals used during the manufacturing process of the adhesives, in particular the solvent types, in the future.

A related prior art construction is shown in U.S. Patent No. 3,990,627 to Olson who discloses an

adhesive closure for a plastic bag used for protecting a sandwich or another food product. A part of the bag has a strip of release tape which overlies and protects the adhesive until the bag is ready to be used to store food therein. In order to open the bag, a user pulls the release tape away from the pressure-sensitive adhesive which is then pressed to close the bag.

However, such a release strip to protect an adhesive strip in the plastic bag of Olson could not be used in the same manner on a return envelope in order to solve the problems existing in the paper manifold art.

### SUMMARY OF THE INVENTION

An envelope construction includes an outer envelope, at least one insert sheet which may be in the nature of a bill or a copy thereof, and a return envelope for the convenient use of a recipient. The return envelope has a closure flap provided with an adhesive strip for sealing the return envelope. The insert sheet includes a detachable end strip provided on its back side with a protective release agent which overlies the adhesive strip provided on the closure flap of the underlying return envelope.

A primary object of the present invention is to provide a simplified envelope construction which can be prepared continuously in bulk at a very high speed on a conventional collating machine.

Another object of the present invention is to eliminate the need for a protective transfer tape affixed to the adhesive on the closure flap of the return envelope. Thus, an inventory of transfer tapes need not be maintained and down time required for changing reels of transfer tapes is saved.

A further object of the present invention is to provide a protective element, i.e. a release agent, which can be applied either in-line or across-the-web so that unitary envelope constructions incorporating return envelopes can use either side or top flap openings for the return envelopes.

One advantage of the present invention is that only two chemical mixtures or solutions are required, viz. an adhesive mixture which is extruded onto the closure flap of the return envelope and a release agent which is extruded onto the back side of the end strip of the insert sheet that is superimposed over the back side of the return envelope. The adhesive mixture and the release agent can be applied as the web of papers making up the envelope construction is running in the longitudinal direction, i.e. in a running extruded stream as the web runs in-line. Also, the adhesive mixture and

release agent can be applied in an across-the-web pattern which must be placed in certain positions when return envelopes having top flap openings are used.

Other objects and advantages of the present invention will become more readily apparent from a careful review of the drawings described immediately hereinbelow and from a study of the description of the preferred embodiment given hereinafter.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows the envelope construction with the left margin being torn off by a recipient.

FIG. 2 shows the contents being partially removed from the outer envelope by the recipient.

FIG. 3 shows the contents completely removed from the outer envelope with thumb notches detached from the outer envelope which is about to be discarded.

FIG. 4 shows that the contents inside the outer envelope constitute inserted sheets in the nature of a bill and a copy thereof. The contents also include a return envelope.

FIG. 5 shows the bill folded and being inserted into the back side of the return envelope with a check for payment. A copy of the bill being retained by the recipient is shown with an end strip having a release agent partially removed therefrom.

FIG. 6 shows the front side of the return envelope with the closure flap sealed shut on the back side thereof.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In Fig. 1, a recipient of a piece of mail is holding an envelope construction 10 and tearing off a left margin 12 thereof.

In Fig. 2, the recipient is holding the envelope construction 10 at one end while the contents are partially removed from an outer envelope 14 at the other end.

In Fig. 3, the contents are completely removed from the outer envelope 14 which has its margins sealed at the far end, the top edge, and the bottom edge. Thumb notches 16, which have been detached from the other end of the outer envelope 16, are about to be discarded. In Fig. 4, the contents removed from the outer envelope 14 are shown to include, in this particular embodiment, inserted sheets in the nature of a bill or statement 18, a copy 20 of the bill 18, and a return envelope 22 comprising a front sheet and a back sheet with one sheet extending beyond the other sheet to form a

closure flap 30. The copy 20 has an end strip 24 detachable along a perforated line 26. A release agent 28 is applied to the back side of the end strip 24. The return envelope 22 includes the closure flap 30 foldable along a fold line 32. The closure flap 30 is provided with an adhesive 34 which seals the return envelope 22 when the closure flap 30 is folded along the fold line 32. During mailing and before sealing the adhesive 34 on the closure flap 30 is protected by the overlying release agent 28 on the strip 24 of the copy 20 which is superimposed over the return envelope 22.

As shown in Fig. 5, when the recipient desires to pay the bill 18, he or she folds the bill 18 and encloses a check 36 or similar negotiable instrument into the one end of the return envelope 22. The copy 20 of the bill 18 is retained by the recipient. If desired, the person may detach the end strip 24 containing the protective release agent 28 by tearing along the perforated line 26 of the copy 20 and then may discard the end strip 24. Once the folded bill 18 and the check 36 are completely inserted into the back side of the return envelope 22, the closure flap 30 carrying the adhesive strip 34 may be folded along the fold line 32 so that the closure flap 30 seals the one end of the return envelope 22.

In Fig. 6, the return envelope 22 is turned over and the front side is shown. The closure flap 30, folded along fold line 32, is shown in phantom lines. The adhesive strip 34 (not shown in Fig. 6) on flap 30 seals the return envelope 22 shut with the folded bill 18 and the check 36 (also not shown in Fig. 6) contained inside.

As far as the materials involved are concerned, they are all commercially available. Examples of suitable pressure sensitive chemicals which may be used for the adhesive strip 34 are SBR, SIS (styrene isoprene styrene), acrylates, etc. Mixtures which may be selected for use as the release agent 28 on the back side of the end strip 24 are wax, silicone, polyethylene, etc.

The foregoing preferred embodiment is considered illustrative only. Numerous other modifications and changes will readily occur to those persons skilled in the paper manifold art. Consequently, the disclosed invention is not limited to the exact construction and method of use shown and described hereinabove.

#### Claims

1. An envelope construction 10, comprising:
  - a. an outer envelope 14;
  - b. a return envelope 22 contained within the outer envelope 14, said return envelope 22 having a front sheet and a back sheet both provided with

marginal edges bonded together except along one edge, said front sheet extending beyond the back sheet at said one edge and having a closure flap 30 provided with an adhesive strip means 34 for sealing the return envelope 22; characterised in that there is provided one insert sheet 20 arranged inside the outer envelope and juxtaposed over the back sheet of the return envelope and said one insert sheet includes an end strip 24 provided with a release agent 28 on its back side, said end strip 24 overlying the adhesive strip means 34 provided on the closure flap 30 for the front sheet of the return envelope 22.

2. The envelope construction, according to claim 1, wherein:

said end strip 24 provided with a release agent 28 is separatable by a perforated line 26 from the one insert sheet 20.

3. The envelope construction, according to claim 1 or 2, further comprising:

at least an additional insert sheet 18, arranged inside the outer envelope 14 and juxtaposed over said one insert sheet 20.

4. The envelope construction, according to claim 3 wherein:

said additional insert sheet 18 is a bill and said one insert sheet 20 is a copy of the bill

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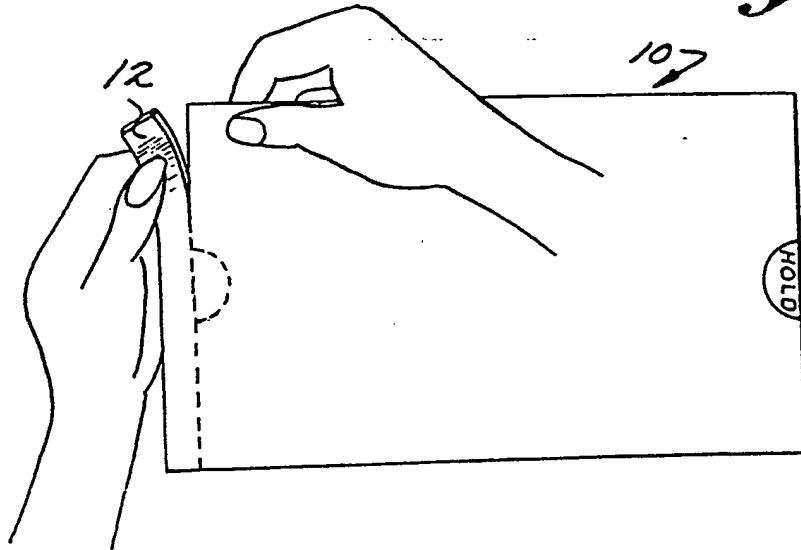
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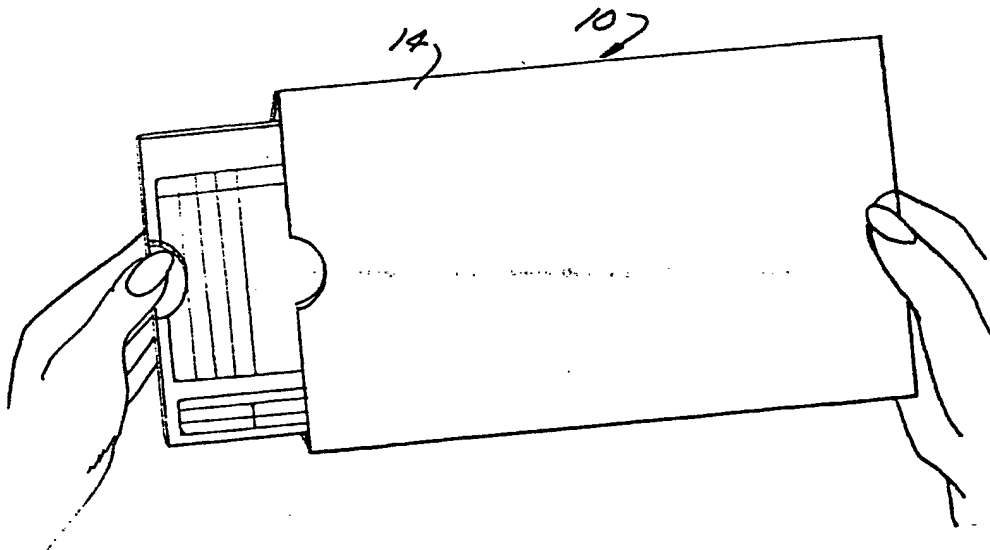
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*Fig. 1.*



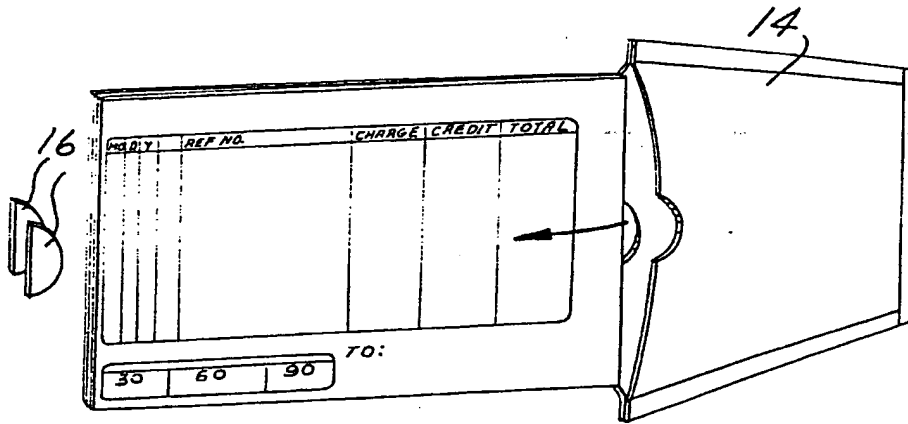
*Fig. 2.*



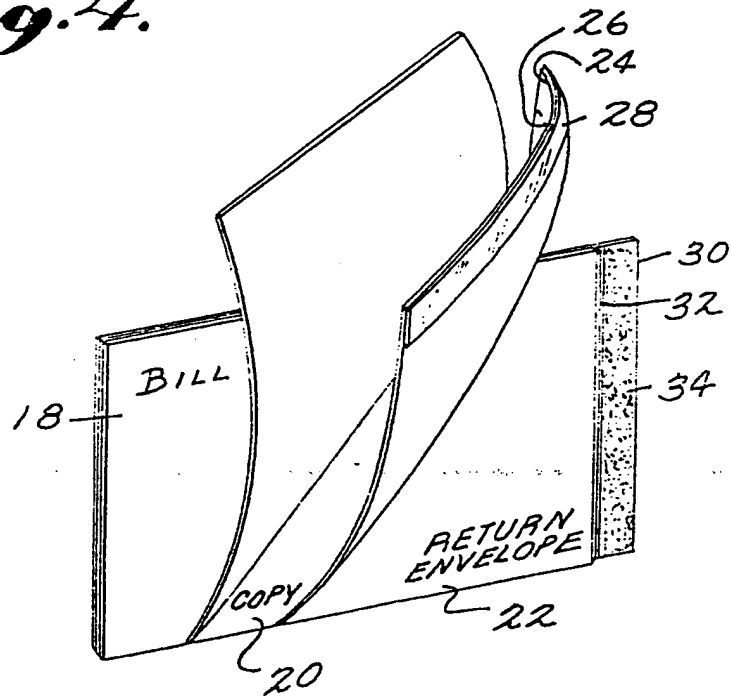
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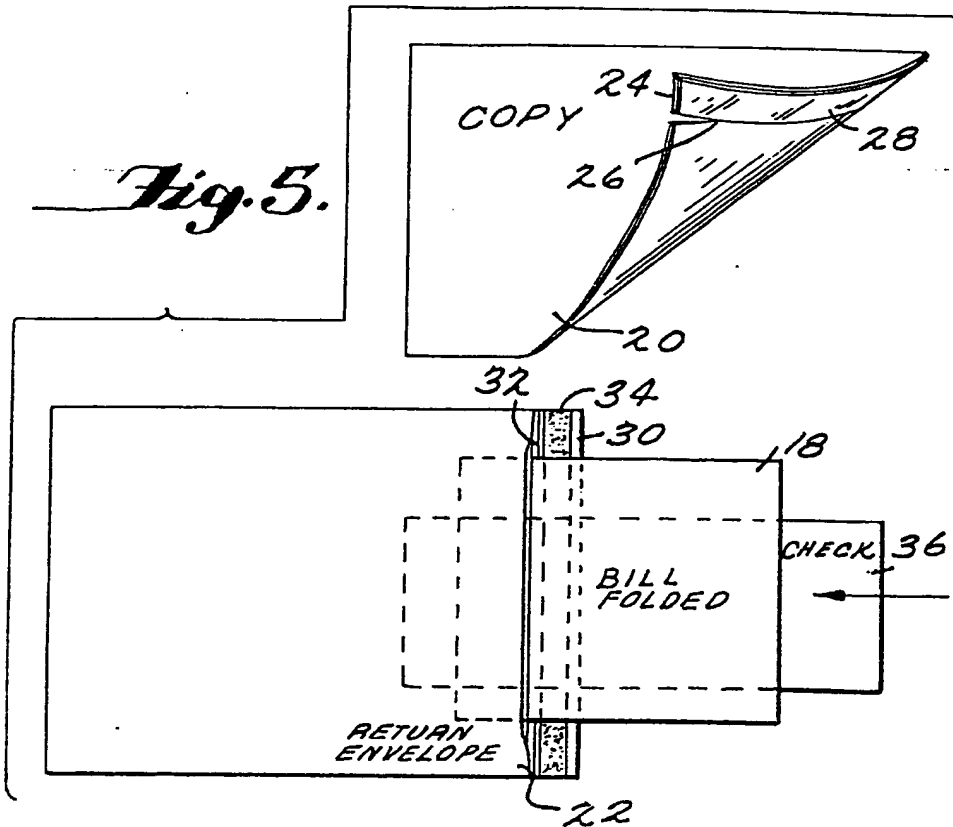


*Fig. 3.*



*Fig. 4.*





*Fig. 6.*

